Devendra Shripad Bhave

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Background

- Research scholar at Department of Computer Science and Engineering at IIT Bombay *(2012 - present)*
- Worked as software developer at Applied Micro Circuits Corporation (APM), Pune *(2009 – 2012)*
- Graduated from IIT Bombay with M. Tech degree in computer science and engineering *(2007 – 2009)*
- Graduated from Mumbai University with B. E. degree in computer science and engineering *(2003 - 2007)*

Areas of Interest

Timed Automata, Formal Verification of Programs, Mathematical Logic, Compilers.

Educational Background

Course	Institute	Joined	Passed	Score
PhD	IIT Bombay	January 2012	-	8.75/10
M. Tech.	IIT Bombay	June 2007	June 2009	8.7/10
B. E.	Datta Meghe College of Engineering, Mumbai University	June 2003	June 2007	75.5%

Courses: Advanced Compilers, Internals of GCC, Formal Specification and Verification of Programs, Data Mining, Statistical Foundations of Machine Learning, Foundations of Parallel Computing, Algorithms, Advance Computer Architecture, Advanced Computer Networks, Micro Electro-Mechanical Systems, Performance Analysis of Computer Systems., Advance Topics in Automata Theory, Program Analysis, Embedded Systems.

Projects:
Strengthening Data Dependence Analysis in GCC 4.3
(M. Tech. Project under the guidance of Prof. Supratim Biswas)
        Precise data dependence analysis is pre-requisite for parallelizing compiler. This project involved addition of more precise and efficient data dependence tests in GCC 4.3 . There is also an issue of selecting right dependence test. So, we proposed an approach that intelligently chooses data dependence test reducing overall analysis time substantially.

Cut Plan Optimization
(B. E. Project under guidance of Prof. S. Sawarkar)
        This project dealt with real life optimization problems faced in manufacturing industry. Idea was to formulate problems in manufacturing industry so that methods in operations research can be

applied. Key contribution was development of linear and integer programming solvers.

Professional Background

- Worked in design and development of device drivers for Linux and real-time operating system Wind River VxWorks for APM products
- Designed drivers for two types of chips: Telecommunication and general purpose

Telecommunication chips: Worked in designing drivers for APM PQx and Yahara product lines. These chips are used in telecom backbone network switches and routers. These devices support 10G/40G/100G Carrier Ethernet, SONET and OTN physical layer switching.

General purpose chips: Worked in driver development for PowerPC based APM 86xxx products. I was responsible for the design and development of VxWorks drivers for device controllers for Ethernet, SATA, LCD graphics, DRAM.

Summer School

Attendee at **Microsoft Research India Summer School 2008** on Programming Languages, Analysis and Verification held in June 2008 at IISC, Bangalore.

Motivation for Research

During my professional experience of two and half years, I designed drivers for real-time operating system. I got curious about verification of drivers, especially for time guarantees. Then I decided to join the research program at IIT Bombay to understand theoretical challenges involved in verification of timed systems and find new approaches for verification.

Extracurricular

- Playing flute
- Study Indian classical music